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IN THIS ISSUE:

Engineer and Management

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THE AMERICAN ENGINEER

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The Engineer and Management

By Lee H. Hill, Publisher

Electrical World and Electrical Contracting

Mr. Hill has kindly given us permission to reproduce the following condensation of his address presented before the meeting of the American Institute of Electrical Engineers, Chicago Section, October of last year and published in Electrical Engineering, July 1946.

Foreword

The engineer's relationship with management may be considered from three angles: the engineer is an employee of management, the engineer is an engineer, and the engineer is a candidate for managerial positions. However, as he moves further and further away from his slide rule up into the managerial brackets, he frequently finds that he is ill-equipped to handle the personal elements which enter into an executive position. Perhaps the solution is the inclusion of more of the so-called "cultural" and "human relations" subjects in engineering education.

Emotionally, the engineer is a human being much the same as other employees in the plant. Management's attitude toward the engineer should be based on the fact that the engineer is a person, not an engineer as such; and all the principles which have become commonplace in discussions of employer-employee relations apply to the engineer as well as to the lathe hand. The engineer dislikes unfair treatment from his superior as much as the lathe hand does; he is as little fond of being reprimanded in public as any other employee. He wants a pat on the back when he has done a good job, and he wants advancement to be on a merit basis, independent of favoritism. The engineer, however, may have a more pronounced sense of dignity and of the significance of his work.

The greatest opportunity for improvement in industrial organizations today lies in the field of improved employer-employee relations. Many employers, however, confuse employer-employee relations with union relations which are only one narrow phase of the broader problem. They often fail to recognize the employee problem until the union knocks on the door. Then they sometimes become quite vocal about their "ungrateful" employees, and devote their entire attention to union problems, continuing to ignore the employee problem which had been present all the time, and which caused the employees to turn to a union. A case in point is that of foremen's unions. If the history of the foremen's union movement is traced, it will be found that an employee problem existed among foremen long before the foremen turned to unions in an attempt to force higher management to give them an adequate hearing.

Lee H. Hill

Relation to Management

The engineer's relation to management is somewhat similar to that of the foreman, although the engineer is, if anything, even closer to management. But it sometimes seems that the higher up in the organization an employee may be, the less some managements recognize his desire to be recognized as an individual.

The only real solution to the union problem is to solve the employee relations problem, and employers must recognize that fact. Such good employer-employee relations must be developed that the union, if there is one, must remain reasonable or lose the support of the employees themselves. Employees will support a union, no matter how unreasonable it is, as a counter-irritant to management if they feel that management itself is unreasonable.

This does not mean that the mere existence of an engineers' union, or a foremen's union, or any other union in a plant, is evidence of unsatisfactory employee relations. With a strong labor movement, the employees may organize even where relations are good. But, by and large, taking the country as a whole and industry as a whole, unionization never would have gained the ground it has if industry had not left the door wide open—Wagner Act or no Wagner Act.

Open Door to Unionization

The door may be opened to unionization by such a simple thing as failure to provide means by which the employee can get attention for his gripes. In the National War Labor Board

panel hearings on foremen's unionization, a point emphasized by the union was that there was no grievance machinery, no way in which a foreman could talk over his difficulties with his employer. A simple enough problem, is it not? But all these employee relations problems are fundamentally simple. The road to good employee relations is really nothing more than the road marked "Good Management."

Good management treats people as individuals. It does not discharge an employee for example, who has been with the company for 30 years because he is old and has passed the peak of usefulness. In finds some other way of taking care of him. But 30-year men still are being discharged unjustly in the United States, and the sad part of it is that many in management see nothing wrong with such actions. Unfortunately those who are suffering from bad employee relations frequently think they are doing everything possible for their employees, and that all the trouble occurs merely because the employees are unappreciative.

If management throughout the United States would spend on its employee problem (not the union problem) just five per cent of the time it spends on production and finance, there would be fewer serious employee problems in the country. That means, of course, an effective five per cent. There is no need for more paternalism —buying turkeys for employees and things of that sort, which some people seem to think are the heart of employee relations. The employee is "ungrateful" for paternalism as well he may be, because he does not want it. What he wants is fairness and consideration, a chance to feel that management considers him important. And he wants an opportunity to advance if he has the ability to do so.

Employee Capabilities

In the case of the engineer, management has been particularly remiss in providing for advancement. Young college graduates are taken, because they can be hired for $150 a month, and are put on jobs which clerks could do, with no provision for advancement as they gain experience.

Recently I revisited a company after a lapse of five years. Except for the tinges of gray in the hair of some of the men, it seemed that I had been away hardly a month. Everybody had the same job he had held five years before.

I am sure that the man at the reception desk—a man 40 years of age who did nothing but announce callers —was not being used at his highest skill. True, he was not an engineer, but he had a personality which qualified him for something better, possibly as a salesman. It had not occurred to anyone, apparently, to help him out of his rut. Then there was the third assistant engineer, a college graduate. "I've been here for 15 years now," he said, "and I have the same job I had when I came."

Of course, these men could, and probably should, have quit. But the employer, if he wants good employee relations, never should make this necessary. If he hires these men he should find a way to develop them to their maximum capabilities. No man can be happy on his job unless he feels that he is being used at his highest skill. Any less significant work spells frustration.

Along with better opportunities for the engineering group, there is a need for more exact placement; and for that more accurate job descriptions are a necessity. Accurate job descriptions made it possible for one large manufacturing company to hire men who had failed in engineering school after the first or second year for positions which ordinarily would have appeared to require graduate engineers. The men with a year or two of training, it was discovered, were perfectly capable of handling work which required a smattering of engineering knowledge. What is more, they were satisfied with positions where graduate engineers could not have been satisfied for very long. In terms of human values, a man of active intelligence tied to a monotonously repetitive job is likely to be much more dissatisfied than an unqualified man on a difficult job.

In addition, job descriptions form the basis of a proper rate structure, and a poorly designed rate structure is one of the great sources of employee dissatisfaction. Even more important than the general level of rates are the relative rates within the structures. Conditions can be reasonably satisfactory where rates are low if individuals are classified properly with respect to each other, but there can be great dissatisfaction even with high rates, where individual salaries do not bear a proper relationship. The rates must be aligned in such a way that no one can say justifiably, 'I have a more important job than so-and-so but he is paid more money than I."

Lately there has been a great deal of discussion about whether engineers are part of management or not. Actually, of course, they generally are, or should be. However, sometimes they are not treated so, just as foremen frequently are not. Whether they are or not, the National Labor Relations Board long since has decided that they come under the provisions of the Wagner Act. Whether or not the employer wants his engineers to organize, the most constructive approach is to build sound employee relations so that his engineers feel no need of organization.

What Price Protection?

Of course, from the viewpoint of the engineers themselves, another question arises: Should they organize as a matter of self-protection? Will it be to their advantage?

Engineers, by the very nature of their work, must operate on the basis of individual merit, and certainly there is nothing in union theory that recognizes individual merit. If engineers are tempted to bargain collectively they are bound to lose an important element of their professional status. As a professional man, the engineer should be able to accomplish more by individual bargaining, because collective bargaining tends to reduce everyone to the average. Collective bargaining frequently is involved with questions of *average* wage and *minimum* wage; with little concern for recognition of unusual merit or ability. Those who are below average benefit, of course, but what engineer is willing to put himself in that category? If he is, he is probably in the wrong field.

Even if the engineers themselves do not want to organize, there is the possibility that they may be included within the scope of the production workers' union. This could occur if the National Labor Relations Board designates the entire plant as the voting unit. As engineers are a comparatively small group numerically, they easily could be outvoted, and the productive workers' union might become the collective bargaining agent for their group.

The best way to avoid such a situa-

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Government Employment Of Consulting Engineers

By Milton F. Lunch

Legislative Analyst, Washington Office,

National Society of Professional Engineers

In an effort to determine the policies and procedures of the Federal Government in the employment of outside consulting engineers, the Washington Office of NSPE has conducted a general survey of the key government agencies using such outside assistance.

The survey was directed primarily at the question of the methods and standards used by the various agencies in determining the fees to be paid such professional consultants.

Definite Minimum Fees Lacking

In no case was there found to be any written minimum scale of fees in use by any government agency. In practically all cases it appears that the fees to be paid to the consultant are determined by "negotiation and discussion."

Various Federal agencies pointed out that they were guided generally by the minimum fee recommendations of various engineering societies, but all of them pointed out that such recommendations could not always be binding upon the government agency because of various other important factors entering into the negotiations. Some of the other considerations were: experience of the consultant, location of the project, size and scope of the project, limitations upon appropriations available, number of consultants necessary, etc.

Fee payments of anywhere from $25 per day to $150 per day were reported by various agencies.

Federal Works Agency Procedure

One of the principal agencies requiring the use of consulting engineers and architects is the Federal Works Agency. A study of the operations of this agency in connection with the employment of consultants provides a typical example of the operations of most government offices.

The FWA is divided into three units for functional purposes and the operation of each sub-division will be considered separately.

Bureau of Community Facilities

This portion of FWA is concerned with such projects as sanitation, sewers, water supply, schools, recreation facilities, markets, waterfront developments, etc.

In most cases the plans for the project will be drawn by an architect in the employ of FWA. In this case no question of fees arises as he is a salaried government employee. However, when it is found advisable to bring in an outside consultant architect his fee will be determined, as stated above, by negotiation and discussion. It is stated that the fee paid will, in most cases, approximate the minimum fee schedules of the various state societies. If the architect feels that an extra fee should be paid because of certain complications in the work it will generally be allowed if it is shown that such additional work is necessary. The Bureau will generally place the architectural consultant contract in the area in which the project is located. In some case the architect will be called upon to inspect the actual construction as it progresses. In such cases an extra fee is included, also by negotiation.

Milton F. Lunch

Following approval of the plans by the Bureau and by the agency for which the project is being handled, bids are invited for the actual construction or development work. It is fairly definite that the lowest bid will be awarded the contract, provided the lowest bidder meets the requirements of experience, reliability, financial responsibility, etc. Almost invariably the contractor is paid on a fee basis (a certain percentage of the total cost of the construction—once again depending upon negotiation) or on a flat bid basis. In the latter case the contractor must depend upon his bid being sufficient to cover costs and a margin of profit.

It is important to note that the Bureau does not exercise any control over the contractor in the matter of salaries and fees paid by the contractor to his employees, including engineers. As the work progresses the Bureau has its own inspectors follow the job to insure that the plans and all requirements of the construction are being followed.

Occasionally the Bureau will employ a consulting engineer as the inspector, in which case he is compensated on a basis arrived at by negotiation with the Bureau.

The Bureau operates through nine field offices located throughout the United States and in most cases the field office is authorized to make the necessary contracts and supervise the work.

Public Building Administration

The PBA is responsible for the administrative, technical, and clerical functions incident to the design, construction, operation, maintenance, and repair of Federal buildings. In addition, the agency manages contracts and supervises contractors' operations for the construction, reconstruction, ex-

tension and remodeling of public buildings.

In the case of PBA, architect and engineer consultants are rarely used. This is accounted for by the fact that this agency, under various names, has been in existence for over 100 years, and consequently has built up a competent staff in all fields.

Whenever consultants are used, however, once again it is found that such consultants are paid on the basis of negotiations for their services. The same standards to determine their fees as used by the Bureau of Community Facilities is used by PBA. Whereas the field offices of the Bureau of Community Facilities are authorized to negotiate contracts with consultants, in the case of PBA all such contracts are negotiated and settled in the Washington headquarters.

During the war PBA used cost-plus contracts in many cases, but the present policy is to contract on a straight bid basis, with clauses for re-negotiation by the government and escalator clauses covering wage increases by the contractors. As in the case of the Bureau of Community Facilities, PBA does not exercise any jurisdiction over the salaries and fees paid by the contractors to employees, unless the contract is on a cost-plus basis, in which case PBA will determine that salaries and fees paid to employees of the contractor are not excessive.

While the project is under construction an engineer-employee of PBA, working out of one of the field offices, makes periodic inspections. Field engineers have jurisdiction on repairs up to $2,000. Repairs and new construction over that amount must be cleared through the Washington headquarters.

Public Roads Administration

This sub-division of FWA is the principal road building agency of the Federal Government. It administers large annual authorizations to aid the States in road construction and cooperates with the Department of Agriculture and the Department of the Interior in the construction of roads in national forests, national parks, and other Federal areas. In the cooperative work with the States, annual authorizations are apportioned to the States according to formulas prescribed by law. The law also places with the States responsibility for initiation of projects, preparation of plans, and supervision of construction, subject to Federal approval.

Consequently, in the cases wherein the roads to be built or repaired are for the States, the consultants and contractors negotiate with the individual States rather than PRA. However, when the individual States contract for consultants, the fees to be paid are checked by PRA to determine that the fee is reasonable. The test of reasonableness is, of course, as in the other agencies, an undefined matter depending upon the scope of the work, experience and qualifications of the consultants, number of employees of the consultant, complications in the work, etc.

In a large number of cases PRA has consultants working with them who are not paid employees of the Federal Government, but rather of the State in which the project is located. State Highway engineers will often act as consultants for PRA, but the subject of compensation is not involved in their capacity as consultants due to the fact that they are compensated by their respective States.

In those cases in which the road to be built or repaired is for the Federal Government only, the PRA may engage outside consultants and contractors at fees determined by negotiation in each individual case.

Army and Navy Procedures

In considering the procedure employed by the Armed Forces it is, of course, important to note one important difference between their activity and that of the other Federal agencies. That is the fact that all engineering and construction work is under the jurisdiction of military personnel, even though it may be delegated to civilians in certain cases.

The Chief of Engineers of the Army is responsible for all Army construction, except that pertaining to the Signal Corps, and is charged with the supervision of investigation and improvements for navigation, flood control, and power development on rivers and harbors.

The Navy's Bureau of Yards and Docks may be described as the Navy's "Public Works Agency" for the entire Naval Shore establishment. It is the function and responsibility of the Bureau of Yards and Docks and its field organizations to assist all Bureaus and Offices of the Navy in development, planning and to administer directly the design, construction, and major repairs of the installations and utilities. Its work of design and construction is broad in nature and embraces nearly all forms of engineering and all types of structures. The Bureau's present practice is the accomplishment of construction work coming under its cognizance through

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MORE'N WORMS FOR BAIT—DEC. 5-7,
IN ATLANTA, 12TH ANNUAL MEETING NSPE

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Collective Bargaining For Professional Engineers

By Raymond L. Forshay

Associate Member American Society of Chemical Engineers.

Contributed by the American Society of Mechanical Engineers Committee on Education and Training for the Industries, and delivered at the Fall Meeting of the Society, Boston, Mass.

Mr. Forshay is Power Supply Engineer and market analyst, for the Power Department of Tennessee Valley Authority, Chattanooga, Tenn.

Do we need collective bargaining for engineers? Do we need to sit down at the conference table with management and discuss the engineer's problems, such as our relationships with management and labor, our working conditions and salaries?

Let's look at some actual conditions, not simply theoretical or hypothetical situations. Let's take the case of the field engineering force on a construction job in Illinois where the A F of L building trades are fully organized. This past spring the management of the engineering firm was advised by representatives of a labor union that these engineering employees, part of whom were professional engineers, should be members of a certain A F of L technicians' union which embraces such employees. The management apparently ignored the advice and failed to mention the incident to the employees affected.

Sometime later, the union made a direct contact to the men, advising them to join their union. Upon refusal, an A F of L picket line was established around the job and work was stopped for two months. After some jockeying by both sides, work was resumed but the union singled out two professional men and would not allow them entry to the project. The alternatives for these men seemed to be either to join the union or be forced out of their jobs. The only other recourse which they have under present labor laws is to form a collective bargaining group with employees having mutual interests, unless they may seek refuge under the recently enacted Hobbs Bill.

Other Recent Cases

There is also the case of the engineers in a public utility in Minnesota this past spring who were faced with the danger of absorption by an A F of L union; the threat to a group of engineers in Arkansas on a large ordnance construction job last year; the fight at Curtiss-Wright at Columbus, Ohio, involving both the CIO and A F of L and a group of professional employees; the long pull at RCA's Camden, New Jersey, plant, where the Association of Professional Engineering personnel negotiated a contract that was finally signed in February of this year; The Research and Engineering Professional Employees Association of Whiting, Indiana, which has a contract with Standard Oil of Indiana, and many other cases all over the country, particularly on the West Coast.

Raymond L. Forshay

All of these cases demanded immediate action. They couldn't wait while the Founder Societies tried to get the Wagner Act amended or figure out some other means of maintaining professional dignity. The need for action was immediate, and the engineers involved forged ahead with the guidance offered by the ASCE plan, negotiating contracts with their employers as independent associations, such contracts being written from the point of view of the professional employee with due regard for his standards of ethics and ideals of fair play.

In particular, the engineers on the West Coast have shown divided progress in developing working contracts governing the conditions of employment of professional engineering employees. Out there, in the large industrial plants (where they seem to do everything in a big way) the engineers are concentrated in large numbers, and labor organizations have sought to enfold them. The Southern California Professional Engineers' Association has been very successful in holding negotiations for collective bargaining contracts on a professional level. The Association has a contract signed in March of this year covering professional engineering employees at the Douglas Aircraft Company plants at El Segundo and Santa Monica. It represents the professional engineering employees of the Los Angeles Department of Water and Power in matters concerning employee relations. It won an election contest from the CIO by an overwhelming majority for certification as bargaining agent for engineering employees of the Southern California Gas Company. In this particular case, the NLRB would not permit separation of the professional and sub-professional employees, holding that

An "Unworkable" Unit

> "A unit delineated upon the basis of the scholastic (or equivalent) history of individual employees rather than on the basis of their function, would in our opinion be unworkable and inappropriate for collective bargaining purposes."

This necessitated some change in the makeup of the bargaining unit. However, an important point here is that

the organization for the employees is guided by the professional employees and will conduct its negotiations in accordance with the standards and ethics of the profession.

Another active group on the West Coast is the Seattle Professional Engineering Employees Association, who last month signed a contract as bargaining agent with Parker and Hill, consulting engineering firm of Seattle, and will represent the professional engineering employees of that firm employed in the State of Washington. This Association is also negotiating with Boeing Management for a contract covering engineers employed by that large aircraft manufacturer, after 81 per cent of the professional employees voting in an NLRB balloting in May, selected it as their bargaining agent. Other active groups in the Coastal region are the Southwest Washington Association of Professional Engineering Employees and the Engineers Guild of Oregon.

Tennessee Engineers

To my knowledge, the first of such type organizations began functioning late in 1943; it was the Tennessee Association of Professional Engineering Employees, of which I was one of a committee of three elected to organize and conduct its affairs. There was no question of choice for the engineers, it was either organize or be represented by the A F of L. TAPEE was the first to try to establish the principle that a unit composed of professional employees was appropriate for the purposes of collective bargaining and could represent such employees in negotiations with management. TAPEE's principal activity was during the construction stages of the atomic bomb plant at Oak Ridge, Tennessee, otherwise known as the Clinton Engineer Works. Signed collective bargaining agreements were obtained from two contractors at the project, and the Association became involved in a showdown contest with the International Federation of Technical Engineers, Architects and Draftsmen's Union, an A F of L affiliate, for recognition as collective bargaining representative for engineering employees of a third contractor who employed the largest engineering force on the project at the time. After almost a year and a half of hearings, charges and counter-charges, and a strike threat by the A F of L union, WLB handed down a decision ordering a "member only" contract for TAPEE. However, by that time, the construction work was essentially completed and a very large proportion of the engineering force had moved to other locations. The main accomplishment of the proceedings in this case was that they pointed the way to a more definite determination of policy on the part of NLRB and WLB towards recognizing the interests of the engineering employees.

"Why Organize?"

Now, let us consider first some of the particular questions which are invariably asked when one speaks of organization for the professional men. For instance, "Why is there any need to organize?" First, as a defensive measure, because since the National Labor Relations Act was passed engineers have been quite frequently absorbed into heterogeneous groups, usually against their will but helpless to resist the tide. It is no longer a question of whether engineers want to be organized. We might wish to do it differently, perhaps through our Founder Societies or the National Society of Professional Engineers, but *today's* question is, "Do engineers wish to allow others to speak for them in negotiations with management?" Mr. William H. Davis, former Chairman of the NLRB, in a speech before the Metropolitan Section of ASCE in New York on November 15, 1944, pointed out that "professional workers are in a difficult position between management and production workers. The theory that their position is an impartial one finds little support in actual practice. Their functions are sometimes managerial, and NLRB has quite generally recognized that their ethical and economic outlook is so different from that of production workers as to make separate bargaining groups for them a logical arrangement."

Aggressive Organizing Needed

On the positive side, aggressive organization by engineers is needed because of the large concentrations of their profession in present-day engineering organizations. In such cases, it is practically impossible for management to know or to become acquainted with their problems, and they are not inclined to listen to the individual engineering employee, any more than to the individual tradesman. In these days, management in large organizations has too many worries to bother with the rank and file of the engineers. Under such conditions, the professional employees are justified in organizing to make their collective weight felt, both towards improvement of working conditions and adequate compensation for the work they do.

Engineers May Bargain

Next, there is the question, "Are professional employees entitled under the Act to bargain collectively?" The answer to this question is a decided "Yes," as exemplified by the groups operating according to ASCE's plan. However, there are certain limitations imposed by the Wagner Act, for example, upon those professional employees whose positions are determined to be confidential or supervisory. Mr. Davis reiterated this point in the speech mentioned above and further pointed out that even the supervisory employees may organize for collective bargaining if they wish. If employees are in confidential positions, they will come under the close scrutiny of the Board to determine the degree and character of that relationship, and professional attainments have little weight in such considerations. Under the language of the Act, such employees may be considered as either an "employer"[1] or as an employee, depending upon their examination of this "confidential" relationship.

As an example, in referring to the design engineers of Chrysler Corporation[2] the Board found "nothing" peculiarly personal in the relationship between the Company and its many hundred engineers even though the Company had claimed they were "confidential" employees. Again, when Westinghouse Electric and Manufacturing Company sought to exclude time study engineers and other employees from a unit because their work was of a confidential nature, the contention was dismissed because "the work performed by these employees does not relate directly to the problem of labor relations nor are they so identified with management that they should be denied the right to bargain collectively."[3] However, if an employee is included in conferences concerning policy or labor relations, or has ready access to correspondence concerning such matters, so that his duties may be

(*Continued on Page* 18)

The Purposes of Engineering Societies

The American conception of an engineer was defined by Clarence E. Davies, Secretary of ASME before a distinguished group of engineers and industrialists meeting in Paris, September 16-21. He spoke before the International Technical Congress, which drew to its sessions men from 20 nations. Mr. Davies said:

"The engineer in the United States of America is a vital factor in the life of his nation. He changes its economy and modifies the customs and social habits of its people. He is an idealist and a dreamer. He is a realist and a doer. He cooperates with his colleagues in technology but is impatient with politics. He is frequently charged with lack of understanding of the social effects of his work. He is modest of his talents and likes to be called to high places rather than aggressively press the crowd for position.

"This results, in some places, in an undervaluation of his services. He has the traits common to human beings, as is shown by the organization of his profession, but his work is good and he does have a high sense of professional responsibility."

Six Primary Responsibilities of Engineers

Speaking on the pattern of professional responsibilities of engineers Mr. Davies outlined these as follows:

1. To advance and extend engineering knowledge and art.
2. To maintain high aims and standards for the education of those who are to become engineers. (He revealed that in 1948 about 21,000 young people will be graduated in engineering in the United States.)
3. To maintain high standards for entrance into the profession.
4. To increase the usefulness of the profession.
5. To maintain high standards of conduct between the engineer and his client, his employer, his colleagues and the public.
6. To minister to the public interest.

Ministry to the Public

In regard to ministry to the public, Mr. Davies summarized:

"In certain very effective ways the engineering profession has contributed immeasurably to the public welfare. The daily work of the engineer results in plenty and convenience at less cost, but, in addition, the engineer has made his engineering skill available in such technical problems as safety and has developed codes and standards which have saved lives and money. Engineers are employed in large numbers by the public. The implication of this responsibility of 'ministry to the public,' however, is that over and above his daily work, the engineer should assume some civic responsibilities and participate in public affairs, nationally and internationally. Several local engineering groups have made spectacular contributions to the solution of local civic problems. The Engineers Joint Council is busily engaged at the national and international level. During the war engineers served in many capacities in public leadership in production and research and the impact of science on statesmanship will, undoubtedly, call many to service in the future. Many engineers are active in their community problems by taking responsibility on local boards of education and boards of city management. However, there are few engineers occupying elective office. One practicing engineer is serving in the United States Congress.

"The individual engineer is generally impatient with the problems of politics but the need for his active interest in civic affairs is being continuously stressed by leaders in the profession."

"Why Engineers Should Register"

M. W. Cameron, Chairman of NSPE's Public Relations Committee, recently put the above question to a number of professional engineers. He has received a number of interesting replies. With Mr. Cameron's permission, we present a few excerpts from the answers given:

1. Registration is required by law where the practice of professional engineer affects the public health or safety. Of course the work of a large number of engineers falls within this category, either directly or indirectly.
2. Registration implies legal recognition of professional competency.
3. Registration will promote public recognition of the professional status of the engineer.
4. The term "engineer" is used so loosely in this country that people need to be educated to the significance of the term "professional engineer." This term must come to signify a group of men who, through education, experience and legal recognition, are in a different category than the man who runs the engines down at the local brewery.
5. Registration provides legal recognition of the professional status for collective bargaining.

"Deep Personal Satisfaction"

6. There is a deep personal satisfaction which an engineer should de-

(*Continued on Page* 23)

The Georgia Engineers Have a Great Program—Literally a "Feast of Reason and a Flow of Soul," With Plenty of Excellent Entertainment.

MEMBER STATE SOCIETIES N.S.P.E. — *Officers and Directors*

Member	President	Secretary	National Director
ARKANSAS	R. L. PARMELEE Box 588 Helena, Arkansas	JOSEPH F. MAYNE Little Rock, Arkansas	MAX MELLBERGER Pyramid Building Little Rock, Arkansas
CONNECTICUT	HARRY E. HARRIS 229 Thorme Street Bridgeport 6, Conn.	FRANK E. KLEIST 126 Lockhart Ave. Waterbury, Conn.	HARRY E. HARRIS 229 Thorme Street Bridgeport 6, Conn.
D. C.	HERBERT MANUCCIA 3900 Mt. Vernon Ave. (11GWC) Alexandria, Va.	RALPH A. DANE 804 Beverly Dr. Alexandria, Va.	FRED W. L. HILL 6440 Barnaby St., N. W. Washington, D. C.
GEORGIA	CARL W. EVANS 1020 Grant Building Atlanta, Georgia	RAY L. SWEIGERT Georgia School of Technology Atlanta, Georgia	ROY S. KING Georgia School of Technology Atlanta, Georgia
ILLINOIS	GEO. H. ANDERSON Annex Building Herrin, Ill.	H. E. BABBITT 204 Engineering Hall Urbana, Ill.	W. A. OLIVER 201 Engineering Hall Urbana, Ill.
INDIANA	CARL E. VOGELGESANG 5218 Kenwood Ave. Indianapolis, Ind.	L. M. CONDREY, Ex. Sec. 3436 No. Temple Avenue Indianapolis, Ind.	M. W. CAMERON R.R. 1, Box 105-A New Augusta, Indiana
KANSAS	MALOY QUINN City Office, Clay Center, Kansas	HAROLD H. MUNGER Kansas State College Box E Manhattan, Kansas	C. H. SCHOLER Kansas State College Manhattan, Kansas
MARYLAND	CHARLES A. MOHR 1716 Windemere Ave. Baltimore, Md.	ROBERT ANDREW NORRIS Springfield State Hospital Sykesville, Md.	RUSSELL B. ALLEN 4610 Hartwick Rd. College Park, Md.
MASSACHUSETTS	RAYMOND C. NEWTON Babson Park 57 Massachusetts	ALVIN S. MANCIB P.O. Box 53 West Somerville, Mass.	WILLIAM F. RYAN Stone & Webster Co. 49 Federal Street, Boston, Mass.
MICHIGAN	STEPHEN G. SZABO c/o Gen. Motors Corp. Detroit 2, Mich.	DONALD E. TREFRY P.O. Box 31, Kensington, Sta. Detroit 24, Mich.	IVAN N. CUTHBERT 2881 N. Platt Rd. Ann Arbor, Mich.
MINNESOTA	H. E. McWETHY 1, S. 11th Street Minneapolis, Minn.	RICHARD R. PRICE, Ex. Sec. 1010 Guardian Building Saint Paul 1, Minn.	S. L. STOLTE 1437 Marshall Avenue Saint Paul 4, Minn.	HIBBERT HILL 4512 Wooddale Ave. Minneapolis, Minn.
MISSOURI	C. G. ROUSH 101 W. 11th St. Kansas City 6, Mo.	H. J. BRUEGGING P. O. Box 365 Jefferson City, Mo.	BRUCE WILLIAMS P. O. Box 264 Joplin, Mo.
NEVADA	F. D. RATHBURN 2210 W. Bonanza Rd. Las Vegas, Nevada	L. J. H. SMITH P. O. Box 329 Las Vegas, Nevada	A. J. SHAVER 209 So. Third Street Las Vegas, Nevada
NEW JERSEY	DANIEL M. KRAMER 107 So. Gerard Street Woodbury, N. J.	FREDERICK D. BRAUN 127½ No. Mass. Ave. Atlantic City, N. J.	HUGH C. CLARKE 97 Bentley Ave. Jersey City, N. J.	C. GEORGE KRUEGER 85 Van Reypen St. Jersey City, N. J. JOS. M. CERRETA 163 W. Colfax Ave. Roselle Park, N. J.
NEW YORK	CHAS. W. BURKE 385 Flatbush Ave. Ext. Brooklyn, N. Y.	FRANK J. G. DUCK, Ex. Sec. 1941 Grand Cent. Term. New York, N. Y.	WM. H. LARKIN c/o B. F. Sturtevant Co. 420 Lexington Ave., N. Y.	LELAND R. POST c/o N. Y. Tel. Co. Binghamton, N. Y.
OHIO	A. C. NEFF P. O. Box 170 Middletown, Ohio	LLOYD A. CHACEY, Ex. Sec. 63 South High Street Columbus, Ohio	J. S. KENNEDY 2945 Lee Road Shaker Heights, Ohio
OKLAHOMA	C. S. WORLEY 410 Commerce Exchange Bldg. Oklahoma City, Oklahoma	ROGER L. FLANDERS 410 Commerce Exchange Bldg. Oklahoma City, Oklahoma	CHARLES S. LARKEY Box 521 Tulsa 2, Oklahoma
PENNSYLVANIA	LeROY F. CHRISTMAN 101 Endlich Ave., Mt. Penn Reading, Pa.	VICTOR J. SNYDER 29 S. 3rd St. Harrisburg, Pa.	J. J. PAINE 1430 N. Euclid Ave. Pittsburgh 6, Pa.	LeROY F. CHRISTMAN 101 Endlich Ave., Mt. Penn. Reading, Pa. RAY M. FULLER 560 No. 16th St. Philadelphia, Pa.
PUERTO RICO	C. CALOR MOTA University of Puerto Rico Mayaguez, Puerto Rico	ANGEL SILVA, Ex. Sec. Dept. of the Interior Santurce, Puerto Rico	SALVADOR QUINONES 20 East Leland Street Chevy Chase, Maryland
RHODE ISLAND	CHAS. E. BLAIS 185 Princeton Avenue Providence, R. I.	VINCENT DiMASE 201 Dean Street Providence, R. I.	DANIEL O. CARGILL Box 257, RFD 2 Valley Falls, R. I.
TEXAS	JAMES P. EXUM 704 Texas Avenue Austin, Texas	JOHN J. LEDBETTER, Jr. 504 Ewell Nalle Bldg. Austin, Texas	W. M. ANDREWS Union Nat. Bk. Bldg. Houston, Texas	HARRY K. RUPP c/o Penna. Shipyards Beaumont, Texas ROBERT COLTHARP 401 E. 31st Street Austin, Texas
VIRGINIA	C. GRADY CATES 417 Arlington Rd. Roanoke, Va.	C. G. MASSIE 4030 Fort Drive Lynchburg, Va.	J. FRANCIS SETTE 4701 Connecticut Ave., N. W. Washington, D. C.
WASHINGTON	JOHN O. JOHNSON 1626 Calif. Ave. Seattle 6, Wash.	DeWITT C. GRIFFIN 717 Lloyd Bldg. Seattle, Wash.	H. C. GLAZE Paulsen Building Spokane, Wash.
WEST VIRGINIA	P. K. PIERPONT 712 College Ave. Bluefield, W. Va.	ROSS B. JOHNSTON, Ex. Sec. Kanawha Hotel Charleston, W. Va.	T. J. JACKSON 1203 Augusta St. Bluefield, W. Va.
WISCONSIN	EDWIN W. SEEGER P. O. Box 464 Milwaukee 1, Wisconsin	O. J. MUEGGE 656 Crandall St. Madison 5, Wisconsin	L. E. PETERSON 312 E. Wisconsin Ave. Milwaukee, Wisconsin

Kindly report any errors or omissions to the Editor.

12th Annual N.S.P.E. Meeting

To Hear Nationally Celebrated

Humorist - Physicist

Dr. Josiah T. Crudup

Atlanta Professional Engineers Readying for Week-End of Entertainment, December 5, 6, and 7. Main Speaker to be Named Later.

Dr. Josiah T. Crudup, beloved Georgia scientist, educator, and humorist will address the N.S.P.E. convention in Atlanta, Georgia, at the Biltmore Hotel opening night banquet.

Early arrivers will enjoy an informal stag buffet supper and a hilarious program of negro minstrels, washboard band, and shanty-town dancing, on Thursday, Dec. 5.

Directors' Meetings Friday will be followed by banqueting in the Biltmore Empire Room. Dr. Crudup, one of America's most versatile speakers, will entertain with his renowned good humor. Widely acclaimed as an authority on cosmic radiation, Dr. Crudup makes a fortunate speaker for an engineering audience. A program of fun and frolic includes the pride of Atlanta's negro amusement world. Negro accordionist incomparable, Graham Jackson, will sing songs of his race ranging from Sewanee River tunes reminiscent of southern slave days to hot blues so exciting to the modern negro. Other Popular colored entertainers are to heighten tempo with dancing, comedy, laughter. An entourage of brilliantly costumed dancers, known as the Homesteaders, will lead everyone to participate in early American dances such as the Virginia Reel and in other typical dances of the early South.

During this time, a very feminine and a very entertaining schedule will be provided the ladies. Featuring this are Gay Nineties parties, Stone Mountain trips, visits to the Cyclorama and other historic points, bridges, luncheons, teas, and shopping trips.

Atlanta-Biltmore Hotel, Atlanta, Georgia
Tentative Program NSPE Annual Meeting
December 6 and 7, 1946

Thursday Dec. 5	2-6 P.M.	Registration
	6-7 P.M.	Cocktail Hour—Pompeian Room (Stag)
	7-9 PM.	Buffet Supper—Pompeian Room (Stag)
		Negro Entertainment
Friday Dec. 6	8:30- 9:00	Registration
	9:00-12:00	NSPE Directors' Meeting—Empire Room
	12:00-12:30	Recess
	12:30- 1:30	Luncheon—Empire Room
	1:30- 2:00	Recess
	2:00- 5:00	NSPE Directors' Meeting—Empire Room
	7:00-	Banquet—Empire Room
		Dr. Josiah T. Crudup, Speaker
		Homestead Dancers
Saturday Dec. 7	9:00-12:00	NSPE Business Empire Room
	12:00-12:30	Recess
	12:30- 1:30	Luncheon—Empire Room
	1:30- 2:00	Recess
	2:00- 5:00	NSPE Business—Empire Room
	7:00- 9:30	Banquet
		Music
		Speaker to be announced

Tentative Program for Ladies
NSPE Annual Meeting, Atlanta, Georgia
December 6 and 7, 1946

Thursday Dec. 6	2:00-6:00	Shopping and Sightseeing
	7:00-	Dinner
Friday Dec. 6	1:00 P.M.	Luncheon—Aunt Fannie's Cabin
	2:30-5:00	Bridge
	7:00-	Banquet—Empire Room
Saturday Dec. 7	1:00 P.M.	Luncheon
	2:00-5:00	Tour of City and Environs
	7:00-	Banquet

For N. S. P. E. Annual Meeting

Atlanta, Ga., December 5-7

Make Your Reservations NOW!

The Time is very short. But if you act now, despite continued shortages of hotel rooms, you may be assured comfortable accommodations during your attendance at the N.S.P.E. Annual Meeting at Atlanta.

For Hotel Reservations, use the coupon below. Mail at once to obtain these desirable accommodations. Please specify date of arrival and departure. Also mention whether single or double room is wanted and the approximate price range you have in mind.

Fill in this form completely and mail to Mr. Yancey, Chairman Reservations Committee.

.....

Mr. Foster Yancey, Chairman
Reservations Committee
P. O. Box 4569
Atlanta, Georgia.

Dear Mr. Yancey:

I plan to attend the 12th Annual Meeting of the National Society of Professional Engineers and shall require

( ) Single Room, approximate rate.....

from Dec. .....1946 to Dec. 1946

( ) Double Room, approximate rate.....

from Dec. .....1946 to Dec. 1946

Name .....

Chapter Affiliation .....

Business Connections .....

Address .....

City .....Zone .....State .....

National and State Society News

News From The Washington Office

By Paul H. Robbins, Executive Director

The last month has been a particularly active one for the staff of the Washington Office. For some time I believe the members of N.S.P.E. have been aware of the fact that the Washington staff has been extremely cramped because of inadequate office space. To effect the aggressive program of the Program of Policy it was essential that additional office space be found. After considerable search, suitable quarters have been found at 1359 Connecticut Avenue, N.W. and the offices were moved from the National Press Building to this location on October 15th. It is believed that with these new quarters the Washington staff will be able to render better services to the members of N.S.P.E., and it is hoped that as many members as possible will be able to visit us and inspect the new facilities.

During the past month the first of the long-awaited Legislative Bulletins appeared. As was indicated in a previous announcement, it is contemplated that the initial distribution of these bulletins will be made to State Presidents, Secretaries, National Directors and members of the National Legislative Committee. It is hoped that these members will pass on to all concerned the items of interest.

The Executive Director made a hurried visit to West Virginia and had the pleasure of meeting with a number of that Society. Mr. Ross B. Johnston, Executive Secretary of the West Virginia Society spent considerable time with the Executive Director and arranged for a very informative and worthwhile meeting with a number of engineers in the Charleston area. State President Kenneth Pierpont and National Director Jackson arranged a special meeting of the Bluefield Chapter to which the Executive Director outlined the plans of the National Society for 1947. Following each of these meetings there was an open discussion of the aims and objectives of N.S.P.E.

In returning from West Virginia, your Executive Director had the pleasure of meeting Mr. C. G. Massie, Secretary of the Virginia State Society and discussing the situation in Virginia.

Membership growth in N.S.P.E. continues to be encouraging though the trend fell off slightly during the last month. As of October 15, membership in N.S.P.E. was 13,368. From the State Secretaries' Conference it appears that most of our States are planning aggressive membership campaigns for the fall season. Extreme confidence was expressed that the desired 15,000 membership can be announced at the December Annual Meeting.

We were pleased to see a number of members of N.S.P.E. visit the Washington office during the last month. Among these were Mr. Williams of Missouri, Mr. Klein of Ohio, Mr. Ledbetter of Texas, and Mr. Van Leer of Georgia.

A cordial welcome is extended to all members to drop into the new offices in Washington.

State Secretaries' Conference

A most successful conference of State Secretaries was held at the Hotel New Yorker in New York City September 27 and 28. Representatives from 17 States, as well as from the Washington Office of N.S.P.E. and several of the National Officers were in attendance.

The discussion was divided into two parts, the first portion of the agenda being devoted to an exchange of ideas and programs as accomplished in the various States. The second portion was devoted to a discussion of ways and means of expediting and unifying relationships between societies and between State organizations and N.S.P.E.

The session was opened by N.S.P.E. Vice-President Alex Van Praag, who welcomed the delegates and extended to the members the hopes of the National Society for a successful meeting.

Following this, Mr. Ross B. Johnston, Executive Secretary of the West Virginia Society outlined a proposal for unified solicitation of advertising for all State magazines desiring to participate. The various States now having magazines expressed interest in the proposal and Mr. Johnston was asked to serve as chairman of a committee to make a full investigation of the details of such an operation and to report same by letter to the various States.

Mr. John J. Ledbetter, Executive Secretary of the Texas Society outlined the aggressive program and procedures used by that Society in setting up chapters and soliciting new members. Following his discussion several other Secretaries presented additional ideas which had been successful in their State in conducting membership drives. Since the majority of States are divided into chapters the relationships between the State Secretaries and these chapter organizations was of considerable interest to all who attended the conference.

Mr. Lloyd Chacey, Executive Secretary from Ohio discussed briefly the manual on chapter activities which previously had been forwarded to each State Secretary and the procedures for organizing new chapters and maintaining interest in existing ones was discussed by several State Secretaries.

While only a few States have begun a program or organization for engineers-in-training, there was considerable interest in this subject and Mr. Frank J. G. Duck, Executive Secretary of the New York State Society, discussed the plans of his State for developing this phase of the professional engineering movement. Other States contributed additional ideas and the Secretaries expressed the opinion that more attention should be paid by the State Societies to this group of engineers.

One of the most aggressive pro-

(*State Secretaries Conference — Continued from previous page*)

grams among student engineers is presently being conducted by the Minnesota Association of Professional Engineers. Mr. T. S. Thompson Secretary of this Association outlined the program conducted at the University of Minnesota. "The American Engineer" has carried a number of the talks used in the program as well as an outline of the program developed by the New York State Society.

In attempting to unify, insofar as possible, the forms, procedures and techniques connected with the management of both the State and the National Societies a number of items were discussed. Ideas were presented for a uniform certificate of membership and membership cards to include indication of State Society and Local Chapter affiliation. These ideas will endeavor to be formulated into a suggested form which will be developed for use by all State Societies.

Mr. Chas. Dodge, Executive Secretary of the New Jersey Society discussed the type of membership records which are usually maintained at chapter and State level. Considerable discussion of these forms resulted in a number of recommendations. Attempts will be made to incorporate all of these recommendations in future forms.

It was interesting to note that the majority of the Societies maintain a fiscal year of January 1st to January 1st. It was noted, however, that the elected officers of one Society are in office from March 1st to March 1st; another from May 1st to May 1st and still another from June 1st to June 1st. But for budget purposes and finances, their fiscal year was also January 1st to January 1st.

In discussing the transmittal of National dues to the Washington Office, a format and procedure was agreed upon which will be utilized as soon as appropriate forms can be printed.

Discussions of the problems of transfer of members, changes of address, delinquency dates and other items all led to a number of recommendations which will endeavor to be followed in the preparation of new forms by the National Society and the utilization of uniform procedures by the States. It was also recommended that a summary of the procedure agreed upon at this conference together with forms which will be developed and incorporated in a single loose-leaf form for the use of all State Secretaries.

The session was fortunate in having as interested participants Mr. L. E. Peterson, Chairman of the Membership Committee for the Western area of N.S.P.E., Mr. Earl L. Daily, Chairman of the Membership Committee of the Eastern area, and Mr. Wm. H. Larkin, Chairman of the Publications Committee. Vice-President J. F. Fairman and President Ritchie Lawrie, Jr. attended the Saturday morning session. Vice-President Fairman expressed the hope that the delegates had received considerable value from this conference and that the coordination of State and National activities will be beneficial to all concerned.

President Lawrie in closing the conference expressed the appreciation of the National Society to the State Secretaries and to the States for their cooperation in making this conference possible. He indicated that the increased interest not only among the members of N.S.P.E., but among all engineers in the program and activities of N.S.P.E. was indicative that the National Society will become a force in the engineering profession. He expressed the hope that such meetings as this would become a regular part of the N.S.P.E. program and that the cooperation of the State and National Societies would further the objectives for which we are all working.

Coming Events—National And State Meetings—

A number of State Societies have not yet notified us of the time and place of their next Annual meeting. May we suggest that a listing of your major State Society meetings in this column will be good publicity. We hope that every state officer will appoint himself a committee of one to see that the details of forthcoming meetings in their State reach the editor of the American Engineer as promptly as possible. Our dead line is the 10th to 12th of the month preceding date of publication.

Our editorial program for the coming winter contemplates the publishing of *more* addresses by prominent members of the engineering profession and in some cases to condense them. The carrying out of this program will require the active cooperation of more program chairmen. Some good talks on non-technical subjects have been lost to the readers of the American Engineer because no effort was made to see that a copy of the address was secured in advance, or because no transcript was made at the time of its delivery.

Sometimes we get comments relating to the "verbosity" of the addresses and other material appearing in these pages. This criticism is no doubt justified in some cases. It is not a proper answer to such critics, to come back with a "Well then why don't *you* write an article on the state of the nation, or of the engineering profession?" Nevertheless that is a good idea. The editor has frequently issued standing invitations to all professional engineers to contribute to the editorial pages of this magazine.

On what subject? Suppose we make a few suggestions: "How to Make a Business Success of the Engineering Profession," "Suggestions to Aid the Engineers-in-Training," "What NSPE Could Do With 60,000 Members," "How Can We *Engineer* Our Social Problems?" etc., etc. You probably have even better subjects in mind. We suggest that right away you take your typewriter in hand and give the readers of the American Engineer the benefit of your thoughts about the profession, and the possibilities for NSPE.

Please Note—All editorial material should be sent to the Washington Office, to avoid delay. The Atlanta address in our Mast Head is the result of a Post Office regulation. No editorial material should be sent to Atlanta.

National Meetings

Dec. 6, NSPE Board of Directors Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

Dec. 7, Annual Meeting, National Society of Professional Engineers, Atlanta-Biltmore Hotel, Atlanta, Ga.

State Meetings

Nov. 22-24, Annual Meeting and Convention, Missouri Society of Pro-

fessional Engineers, Springfield, Mo.

Dec. 6, Third Annual Meeting, Georgia Society of Professional Engineers, Atlanta-Biltmore Hotel, Atlanta, Go.

Dec. 6, Ohio State Society, Executive Committee Meeting, also Board of Trustees Meeting (Second Friday of each month), Columbus, Ohio.

Jan. 16-17, 1947, Eleventh Annual Meeting, Texas Society of Professional Engineers, Hotel Adolphus, Dallas, Texas.

Jan. 24, 25, 1947, Annual Convention, Illinois Society of Professional Engineers, Abraham Lincoln Hotel, Springfield, Ill.

Feb. 26-27, Annual Meeting, Minnesota Association of Professional Engineers, Radisson Hotel, Minneapolis.

Feb. 28-Mar. 1, Annual Exposition and Conference of the Minnesota Federation of Engineering Societies, Radisson Hotel, Minneapolis.

March 20-22, Ohio Society of Professional Engineers Annual Convention, Deshler Wallick Hotel, Columbus, Ohio.

Formation of New Member State Societies

All National Directors, State Presidents and Secretaries have received a letter, dealing with methods of promoting the affiliation of new State Societies with the NSPE. This letter was dated July 16th and was signed by Paul H. Robbins, Executive Director.

Special reference was made to existing engineering societies which might be induced to seek affiliation in the states of North Dakota, Iowa, Nebraska, Mississippi, Tennessee and Florida. It was suggested that considerable impetus could be given to these movements if NSPE members would write personal letters to their friends or associates in these respective states who are registered professional engineers, urging their careful consideration of the possibility of working up local sentiment in favor of affiliation with NSPE. Of course, a copy of the "Autobiography" should be sent with such a letter, and a personal word added as to the advantages of such affiliation.

A further suggestion is that when members of NSPE plan any trips to points in any of the states mentioned, they advise the Washington office of their itinerary, and secure names and addresses of members of NSPE residing in that area.

Writing letters and contacting members are effective methods which can be used by practically every member of NSPE to assist the National Society to bring about affiliation of the Registered Engineers in these states. Please check up on your friends living in any of these states. Kindly send copies of the letters you write to Mr. Robbins, Executive Director in the Washington Office.

J. F. Fairman, one of the Vice-Presidents of the National Society of Professional Engineers, and Fellow, American Institute of Electrical Engineers, spoke before a meeting of the Massachusetts Society of Professional Engineers on Oct. 4. His subject was, "What the Society Has to Offer the Young Engineer."

DISTRICT OF COLUMBIA

The activities of the District of Columbia Society of Professional Engineers for the 1946-1947 season began with a most successful meeting on September 23, 1946, at the PEPCO Auditorium.

In spite of the inclement weather the meeting was well attended and the Society was pleased to welcome five new members.

The presence of these new members is most encouraging and it is hoped that they will continue to be present at following meetings and participate in furthering the objectives of the Society.

The Society was also pleased to have present a number of engineer guests.

The principal speaker of the evening was Robert L. Moffett, Editor of the American Engineer. Mr. Moffett spoke on the problems connected with editing the American Engineer and set forth his concept of the American Engineer and his relation to the social and economic problems confronting the nation today. It was a most interesting talk and from the discussion that followed Mr. Moffett's remarks, it was evident that he had given the members a great deal to contemplate in relation to their profession as Engineers.

Mr. Paul H. Robbins, Executive Director of the National Society of Professional Engineers, was also a guest of the District Society and gave an interesting talk on the activities and plans of the National Society.

The reports of the various committees, which had been appointed some months ago, indicated a full and interesting year for the Society.

GEORGIA

Within the last two months, organization plans have been completed for three additional Chapters of the Georgia Society of Professional Engineers. These are the Augusta Chapter, the Macon Chapter, and the Southwest Georgia Chapter. The latter is to have its headquarters at Albany. All of these have elected officers, have adopted constitutions and by-laws approved by the State Society. A program of activities is underway in all three chapters.

The overall membership of GSPE has been increasing rapidly, 78 new members being listed in the October issue of the State Society's News Letter. From 379 members at the beginning of the year, the number has increased to 607 as of October 1st. By the end of the year we expect to show double the number of members which we had January 1, 1946. Our present membership now represents 47.5 per cent of the total number of registered professional engineers residing within the state.

Members of GSPE throughout the state are urged to attend the Annual Meeting of the NSPE, Dec. 5-7th. This meeting will attract engineering representatives from State Societies from Washington to Massachusetts to Texas. The meetings will focus the attention of the engineering profession of the country on Georgia and its Society of Professional Engineers. All members may attend all meetings. Early hotel reservations are necessary.

GSPE's nominating committee of 12 members has announced the following slate of candidates for State offices: President, Cherry L. Emerson; 1st vice-president, Dr. Roy S. King; 2nd vice-president, Russel P. Pool; Secretary, Dr. R. L. Seigert; Treasurer, Arley

Walker; National Directors, Wm. C. Cureton, Jr.; and Charles Edward Layton. Alternate National Directors, Col. M. J. Blew and Nathan Van Hendricks. State Directors, Joel C. Beall, J. W. Flythe and J. H. Lopez.

There is a move on foot aimed at getting legislation which would require that congressmen disclose their private business connections and outside income. It would be much like the law which requires agents of a foreign government to register. There is likely to be considerable objection to this idea from many congressmen.

MICHIGAN

The Michigan Society of Professional Engineers is progressing rapidly with an increase in membership and Chapters. The total membership is now approximately 300 and a Chapter has been started which is known as the Saginaw Valley Chapter. On October 17, a meeting of this Chapter was held at the Winona Hotel at Bay City, Michigan, at which time the Chapter was presented by members of the State Board of Directors.

Due to increased activities it has been found advisable by our President, S. G. Szabo, to expand the Board of Directors from the original four temporary officers to ten. A new Chapter is contemplated in the section around Lansing, Michigan, and an organizational meeting was held October 11. Our first Vice-President, O. H. Hall, is from this section and is heading up this organizational meeting. In addition to Mr. Hall, our President —S. G. Szabo and our National Director, Ivan N. Cuthbert are scheduled to be present at the meeting. Two other Chapters are expected to be started this fall, one being for the County of Washtenau in which the University of Michigan is located. Professor Hugh E. Keeler, our second Vice-President, of the Mechanical Engineer Department of the University of Michigan, is taking the initiative of the formation of this Chapter and will be assisted by our National Director who also resides in that area.

The Detroit Chapter where the bulk of the present state members are located is in the process of formation. We expect to be able to have reports ready for the next issue of the paper on these developments.

A Legislative Committee is being formed by the Board of Directors. The Budget Committee with G. Miehls, President of Albert Kahns, Inc., Architects and Engineers, as chairman, has presented a very interesting picture for the coming year. A special meeting of the State Society was held on October 23, at which time W. Shelly of the Michigan State Board for registration of Architects, Engineers and Land Surveyors spoke on the subject, "Registration Law and Its Enforcement."

MINNESOTA

Honors for an M.A.P.E. Veteran

Col. E. B. Miller of Brainerd, Minnesota, has won wide publicity in newspapers and magazines all over the United States as one of the heroic survivors of the infamous Bataan death march. Col. Miller was a charter member of MAPE and helped organize the District 3 Society at St. Cloud in 1939. He was the first secretary of that Society. Before the War Col. Miller was an officer of the National Guard, in command of a company with headquarters at Brainerd. At the outbreak of war this company was mustered into the army and sent to training camp. It finally reached the Philippines in time to participate in the long-drawn-out and devastating battle of the Bataan Peninsula. After the surrender Col. Miller was one of the unhappy victims of the cruel death march from Bataan to the concentration camp, during which hundreds of American soldiers died of wounds, disease, fatigue, the brutality of the guards and malnutrition. The Colonel survived and remained in captivity until the Japanese surrender.

On his return to the United States Col. Miller was so weak and emaciated that he had to be hospitalized for some weeks on the Pacific Coast. His return to Brainerd, accompanied by some other survivors of the Brainerd company, was made a gala occasion by the citizens of that town. They made it a public holiday, there was a spectacular parade and in the evening a banquet with speeches and many expressions of the admiration and esteem in which Col. Miller is held by his fellow citizens. On September 13 the Minnesota Surveyors and Engineers Society held their annual picnic and frolic at Bemidji. At the banquet that night Col. Miller was the principal speaker. He delivered a notable address on Americanism with special reference to certain symptoms or evi-

Don't Forget to Make Hotel Reservations. See Announcement on Page 10 of This Issue of The American Engineer.

dences of decadence now becoming visible in this country.

On September 20 District No. 3 Society of MAPE had a home-coming party, at which the guests of honor were the returned veterans, Col. Miller, Lt. Com. C. O. Markson and Lt. L. B. Bjostad. The party was held at Izatys Lodge on Mille Lacs Lake. After the business meeting and dinner the evening was devoted to good fellowship and to reminiscences by the guests of honor. The State Office was represented by Mr. S. L. Stolte, Mr. T. S. Thompson and Secretary Price. Col. Miller has recently been elected State Commander for Minnesota of the American Legion. He proposes from now on to devote his strength and energy to preaching and stimulating the revival of Americanism—those time-tested principles, doctrines and ideals which have made this country strong and great. The engineers of Minnesota—MAPE in particular—hold in high esteem and respect this illustrious representative of the profession.

NEW YORK

Kings' County Chapter

At the suggestion of Membership Committee Chairman Leslie Wax, our President recently appointed a Service Committee headed by Joe Lewin. The function of this committee is to find out how members may be assisted, and to see that such needed assistance is rendered without delay. It is believed that the assistance most generally sought will be information relative to professional problems, regulations governing construction of Federal or Municipal projects, unemployment problems, hospitalization and similar matters.

"Stop sitting back and waiting to be consulted. Take the initiative in seeking attainment of desirable objectives," counselled Congressman Hinshaw, who is also an engineer, to a group of Civil Engineers at a recent meeting.

"To achieve his highest usefulness to our society," the Congressman continued, "the engineer himself should achieve authority in the affairs of society," displacing the "garden variety politician," who rises to prominence merely "because better equipped men shirk their responsibilities as citizens." This does not mean that he would then lose his identity as an engineer, but because of his training and character he is unquestionably better fitted to serve and protect the public interests.

Chairman Henry Sproull and his membership committee are all working to bring new members into the Erie County Chapter.

Westchester County Chapter

Attendance at the September meeting in White Plains was 35. State Society President C. W. Burke and Executive Secretary Frank Duek, gave an inspiring review of the growth of the Society since its founding in 1926. Pointed out were the accomplishments in setting up standards of ethics and practice, the establishment of a schedule of fees and salaries, and its general promulgation and our duties to the profession.

Announcement was made of the presentation of a scroll to Joe Brady as Ex-president of the State Society. Present State membership 2,070 active; 2,015 inactive. Treasury balance (June) $12,845. Meetings of Executive Board were held. November 8 and 9, at Syracuse.

A proposal to provide for life membership in the State Society is presented for consideration. Space does not permit a full quotation. Briefly it sets up "Life Members" and "Members for Life." A "Life Member" is defined as one who becomes exempt from future dues by making a single payment of fifteen or twenty dollars for each dollar of State and National Society dues, or who has prior to 1946 made such payment. A "Member for Life" is one who becomes exempt on reaching retirement age (65) and has paid dues for 20 or 25 years. Comments are desired.

State Society's Membership Committee Very Active

Yes, we do have a very live membership committee headed by Engineer Clayt Miller of Albany. At the committee's meeting in Albany on September 21st, it is felt they laid the ground work for putting the NYSSPE back in first place, i.e., "Second To None."

Action was taken towards the preparation of a brochure to be used in connection with the NSPE "Autobiography" pamphlet. Sub-Committee is working on this for a Syracuse meeting in November. Arrangements are being made for the reproduction of several representative engineering articles, for use in personal and mail solicitation of new members. Effective use of names of newly licensed engineers is planned. Collection of necessary annual dues from backward members was discussed and plans made for reinstatement of others.

The President's Gavel to the top-ranking Chapter showing the largest membership increase was worked out in detail. Among the other features of the proposed membership campaign, was the maintenance of a more complete file at the State Headquarters of all engineering data available for solicitation of new members; standardization of "Application for Membership," and methods of reaching new licensees.

If the work accomplished and the enthusiasm generated at the Albany meeting of this Committee, is any criterion of future success, well, as the Chairman remarked, "It will be in the bag when 1947 rolls around."

OHIO

State membership chairman Moellenkamp requests announcement of the acceptance by 13 Ohio Chapters of their membership quota for 1946. At the October meeting of the Board of Trustees the report of the membership committee showed $685 in the membership campaign fund. Akron Chapter continues in the lead with 433 members.

Chairman Hale of the Community Planning Committee is urging that all chapters take more interest in all phases of local community planning.

The treasurer's report shows the net balance on hand in the treasury of OSPE at about $4,761.31, as October 4, 1946. This figure is substantially less than the balance on hand at this time last year.

The Professional Practices Chairman LeFeber advises that a report will be submitted soon dealing with pro-

posed revision of the Fee Schedules.

The question of making changes in the Constitution and By-Laws, will come up at the November meeting of the Board. Such changes appear to be necessary due to the pending changes in dues and other matters.

At the Annual Meeting of the Toledo Chapter the new President, Owen Clark, took over the top controls. Executive Secretary Chacey spoke interestingly on the needs of Professional Engineering Societies.

OSPE's Executive Secretary is working diligently in his efforts to increase the size of the membership campaign fund. Based on his enthusiasm and persistence, we predict, as well as wish, him success beyond his highest expectations. It is all in a very worthy cause.

PENNSYLVANIA

Philadelphia Chapter

The first fall meeting of the Philadelphia Chapter, PSPE, at the Engineers' Club, Thursday, October 3, 1946, gave promise of the greatest year in our history. 132 were present, 70 came for dinner. There being no guest speaker we had plenty of time for business and committee reports.

We welcomed as new members 20 engineers, 10 surveyors and 5 affiliate associates. Our total membership is 373 at present with an objective of 600 this time next year.

Commander G. E. Geyer reported for Ethics and Practice Committee the plan for education and prosecution where necessary.

Bob Hudson reported for Public Relations Committee and Gerry Lauter for Meetings Committee—gave us motion pictures of various sports and is arranging for prominent speakers for our future meetings. We adjourned at 9:30 P.M. in time for the social hour and refreshments.

President John L. Costello presided and proved that this is not just another Society but the Society for all Engineers for their mutual advantage in safeguarding public welfare.

Past President William G. Bush, Chairman of Special Committee, presented a letter to be sent to all eligible prospective members in this area.

Pittsburgh Chapter

The Pittsburgh Chapter membership stands at 332 as of September 26, 1946, and of this number 27 are new members of this year. The Philadelphia Chapter has obtained 65 new members this year. Their total membership at the above date is 359. It is up to us to get out and obtain a lot of new members if we wish to maintain our leadership in numbers which the Pittsburgh Chapter has enjoyed almost from the beginning in the State Society. The Philadelphia Chapter has 45 engineers-in-training members while the Pittsburgh Chapter has 21 but these are in addition to the total numbers given.

Engineer Frank R. Laying of Greenville, Pa., member of the Midwestern Chapter, was recently appointed vice-president of the Pittsburgh Bessemer & Lake Erie Railroad.

Engineer Edward R. Weidlein, Director of the Mellon Institute, and a member of the Pittsburgh Chapter, PSPE, has been elected chairman of the Alleghany Conference on Community Development. Dr. Weidlein had previously served as Vice-Chairman of the Conference and succeeded Dr. Robert E. Doherty as chairman.

Engineer Michael R. Cozza, Chief Engineer of the Bureau of Recreation for the City of Pittsburgh, resigned his position as of October 2nd to go into private practice.

TEXAS

At the regular semi-annual meeting of the Texas State Board of Registration for Professional Engineers, held in September, the following Officers were elected for the ensuing year:

J. S. Hudnall, Chairman, A. F. Mitchell, vice-chairman; J. B. Thomas, E. W. Pittman and Datus E. Proper, members, and Carl L. Svensen, member-secretary.

The ninth annual report of the Registration Board, shows that during the year 584 applications to practice professional engineering in Texas were accepted. Of these 540 were voted registration. This brings the total for the life of the Board to 7,528.

WEST VIRGINIA

The Thirteenth Annual Meeting of the West Virginia Society of Professional Engineers opened at the Frederick Hotel, Huntington, the afternoon of Thursday, September 19th. The Secretary's report indicated that registered engineers in the state are making a steadily increasing demand for a more vigorous enforcement of the registration laws. A number of suspected violations have been reported by local chapters.

A motion was approved in favor of having a State Society pin or emblem of suitable design.

J. F. Fairman, vice-president of the NSPE, and vice-president of the Consolidated Edison Company of New York City spoke at the banquet on problems of engineering organization.

Huntington did a fine job as host to both the ladies and their engineer escorts. A social hour for the visitors preceded the annual banquet. A dance interspersed with vaudeville entertainment, concluded the program Friday evening.

At a September 21st meeting of the West Virginia Society of Professional Engineers, a motion was adopted that a committee be named to consider a schedule of minimum salaries and fees.

The State Society has received a resolution adopted by the Southeast Chapter, recommending that a committee be appointed to prepare a revised constitution for the Society.

State Road Commissioner E. L. Worthington has prepared a statement detailing a five year plan for the stabilization of 10,000 miles of the unimproved roads. The title is, "Do You Want to Get Out of the Mud?" The plan calls for the improvement of 2,000 miles yearly for a five year period. Complete copies of Commissioner Worthington's article may be obtained by those interested by writing to the State Road Commission, Division of Public Relations, Charleston 5, West Virginia.

Collective Bargaining

(*Continued from Page 7*)

considered managerial, then he would properly be excluded from the bargaining unit. In general, where a number of rank and file engineers are working on production schedules, research projects, a construction job or other form of engineering work, most of them can be assumed to be eligible for membership in a bargaining unit.

Supervisory vs. Professional

Professional employees who have "supervisory" duties are very likely to be excluded from professional groups organized under the Act, but here again it depends upon the degree of supervision exercised by these professional employees and not just the existence of any supervisory functions. For example, in the contract which Stone and Webster signed with the IFTEA and DU on May 27, 1946, in addition to the sub-professional and non-professional men, it provides that two top categories of men, who are professional and who have supervisory functions over the other men, shall be included in the unit; their qualifications require college degrees, plus three to five years' experience or the equivalent. Influential engineers in the New York and Boston areas have been opposed to the idea of collective bargaining on the professional level, with the result, as exemplified by this case, that heterogeneous unions may represent the professional engineer in discussions with management covering salaries and conditions of employment.

The case of the Maryland Drydock Company[4] is of particular interest to engineers, for in it the Board recognized the relationship of employees working in a supervisory capacity as a link between management on the one hand and the production workers on the other. The Board points out that such employees are acting as "agent" for the employer and thus their acts are binding upon the employer whether in collective bargaining procedures or otherwise. In this case the Board decided that "the interest of foremen lay predominantly with the management groups . . . the establishment of bargaining units composed of supervisors exercising substantial managerial authority will impede the processes of collective bargaining, disrupt established managerial and production techniques, and militate against effectuation of the policies of the Act." The Maryland Drydock Company case has by no means closed the issue, however, as is evident by activities of supervisory groups in the automotive industry.

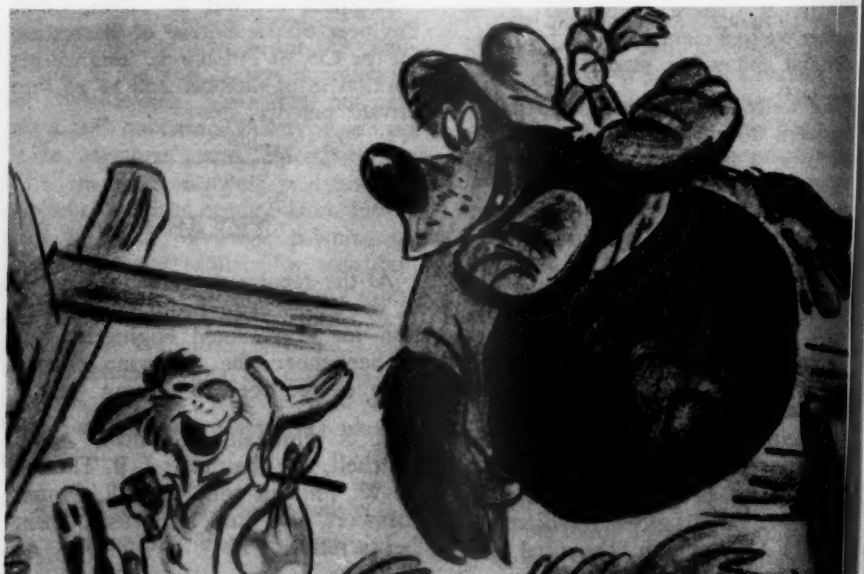
Government Employees

Also of particular interest to the engineering profession is the exclusion by the National Labor Relations Act of employees of the United States, or any State or subdivision thereof, or any person subject to the Railway Labor Act, to the right to bargain collectively. It is apparent that this segment cannot benefit by the Act unless it is modified, except as such government bodies may voluntarily recognize the rights of these employees to bargain collectively. The fate of public employees is to a large degree tied to that of the professional groups employed by private employers.

Another question, and a very pertinent one, is "How do you define a professional employee unit?" Of prime importance is the view of the NLRB, and it has quite definitely developed that, to the Board, it is the actual duties of the employees that determine their status. In most instances the duties of a group of engineers are so related that their educational background and professional attainments are within a range which may be properly defined as a logical bargaining unit, but there may be exceptions, as pointed out in the case of Southern California Gas Company. In such exceptions, it may be necessary for the professional employee group to recognize the limitations imposed by the Act and to accept a compromise. Such cases serve to emphasize the fact that NLRB is not interpreting the Act to preserve the professional status of engineers, for the stated policy of the National Labor Relations Act is to "encourage the practice and procedure of collective bargaining by protecting the exercise by workers of full freedom of association, self-organization, and designation of representatives of their own choosing, for the purpose of negotiating the terms and conditions of their employment or other mutual aid or protection." It makes no mention of preserving the professional status! That is our own responsibility!

Mutuality of Interest

Mutuality of interest of a group, economic strength, history of the organization and past functions in the interest of the employees are items which will come in for scrutiny by the Board in examination of a unit to determine its appropriateness for collective bargaining. While the NLRB has recognized the interests of the professional employees as being different from those of trades and labor or industrial union groups, as indicated by the Shell Development Case[6] and others, nevertheless, the NLRB is not likely to redivide a group already formed on the basis of an academic



YOU HANG ROUND HOME, BR'ER BEAR,
I'M HOPPING OFF TO NSPE's 12TH ANNUAL MEETING,
ATLANTA, DEC. 5-7TH

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degree or other consideration which it might determine as "arbitrary."

If it is assumed that there is some need for organization by professional men, we still have the question, "Isn't it beneath the dignity of engineers to bargain collectively?" In 1944, Scott B. Lilly, Professor of Civil Engineering at Swarthmore College and a former Director of ASCE, put it this way. "The inherent difference between professional men and others is that the professional man undertakes to serve society.—Thoughtful people are agreed that one of the most difficult questions that this country will face at the end of the war is the relation between management and labor. There is no group as well fitted as the engineer to bridge the gap between the employer and the employee. He understands the problems of both, he is accustomed to assuming the position of interpreter between the two groups and it would seem that he has a special obligation at this time to make his contribution by aiding in the settlement of this difficult problem. How can he better approach this problem than by attempting to solve it for his own group and solve it in a way that will result not only in the protection of the younger men of the profession, but in a way that will make a real contribution to the whole movement?"

Young Engineers' Problems

In 1944, when Professor Lilly made the above observation, other prominent engineers were accusing the young engineers of scuttling professional standards and attitude for transitory economic gains. They did not seem to realize that in his own defense and to maintain his professional status, the young engineer needed to act. Now, two and a half years later, let us observe how he has acted. Of the independent professional engineering employee associations' contracts with which I am familiar, these provisions have generally been written in—that in event of lay-off, those employees who possess the greatest ability to perform the required work or to improve the efficiency of the engineering department shall receive first consideration, and where there is a question of choice between two employees of equal abilities, then seniority should determine the choice. As a contrast is cited the contract mentioned previously between Stone and Webster and IFTEA and DU in which are these provisions:

> "All decisions with respect to promotions shall be made by the employer. There shall be *no* promotions, however, to a higher classification within the bargaining group, while employees having greater seniority in the higher classification are on lay-off"

and

> "When a lay-off takes place, top seniority will be accorded to not more than eight persons to be designated by the union *from their elected officers and stewards*. The employer will be kept furnished with a current list showing the persons designated."

There are many other differences in the contracts. In general, however, the contract by the union group follow the usual union setup, while the professional engineering association contract recognizes the responsibility of management to provide differentials in pay in recognition of merit and efficiency, and the determination of employee performance with respect to selection of those to be promoted, retained or discharged.

Unity Essential

If engineers or other professional groups are to bargain collectively, there are certain factors which must be recognized as necessary for success. First, there must be UNITY. Unity of purpose, with such purpose based upon the ethical and moral standards of the profession. Improvement of the economic position of the engineers is, of course, highly important, but it must not be allowed to overshadow the other factors which establish engineering as a profession. There must also be unity of action when the purpose and aims have been agreed upon and the course decided. At the present time, there is a divergency of thought as to the desirability of collective bargaining by professional employees, presumably motivated by a fear of the future of such bargaining groups. Such fears will prove groundless if the professional man continues true to his ethical standards. Professional groups have established in their constitutions statements against labor union tactics such as strikes or closed shops as being inconsistent with the dignity and ethics of the profession. They advocate a democratic procedure for action by the membership rather than by dictatorial leaders, and a furtherance of the aims and principles of the professional body. Such principles have not always been apparent in recent actions of the recognized national labor unions.

Strength of Leadership

Second, in the professional group there must be STRENGTH—strength of leadership, in finances, and in "bargaining power." The group must be strong enough to support its position in discussions with an employer and in disputes with labor unions which may seek to include the professional employees.

Third, there must be a definable employee unit which can be shown to be appropriate for the purposes of collective bargaining. This is a difficult problem, as has already been pointed out. Educational qualification is one factor in defining the unit but is by no means determinative. Licensure is another factor but neither has it been determinative in past decisions of NLRB, although Mr. Davis, in the speech previously mentioned, pointed out that licensure might be used as a determining factor.

National Organization Important

The future of the independent groups of professional employees now being organized may depend upon their combining to form a national organization. At the moment there is no national organization of professional employees, although some thinking has been done and such a movement would seem to be the next logical step. Such an organization would have a unifying effect, plus the advantages of numerical and financial strength, a central office equipped to handle the necessary routine office work, and experienced personnel to handle the labor relations. It could study and recommend standards of employment conditions, further educational efforts to inform the public of the profession's aims and services, study proposed legislation affecting the profession and prepare data and appear before committees of Congress in behalf of the professional men.

The Engineers' Neglect

We all would prefer to have such problems handled through our established engineering societies, the Founder Societies and the others. Very few engineers question the need for an over-all engineering society similar

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Engineer and Management

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tion is for the engineers to request that they be excluded from the collective bargaining unit of production employees, because of the absence of "mutuality of interest." The National Labor Relations Board usually would recognize such a request under the so-called "Globe Doctrine." The production workers' union probably would not be too interested in the engineers' affairs, as they normally constitute only a small proportion of the membership. If excluded from the production workers' unit, the engineers either can form their own collective bargaining agency, or continue to discuss their problems individually with their superiors. Only in a closed shop or in a union shop in a collective bargaining unit including the engineers, are the engineers forced to belong to the union in order to keep their jobs. An engineer in that position no doubt would become active in the union, and attempt to see that the viewpoint of his group received consideration.

The Engineer As An Engineer

As for the engineer as engineer, the technical training given is, in general, excellent. As Dean Kimball of Cornell University used to say: "The average engineer who gets out of our engineering schools can figure out most any kind of a problem and be pretty sure of the answer, except possibly where the decimal point is." In dealing with the problems that can be solved on a slide rule, the engineer is, for the most part, entirely competent; but his training has been a narrow one, and that fact has handicapped him in some of the broader aspects of his work.

Doctor G. F. Kuder, who has done a great deal with interest tests, finds that engineers tend to score high in interest in mechanical and scientific fields, and very low in those involving persuasive tendencies and interest in social service. This is to be expected in view of the fact that engineering training, particularly during the last 20 years, has emphasized technical knowledge at the expense of other qualities. One of the main reasons manufacturers have developed graduate training courses has been that the young engineering graduate has had many rough corners to knock off and has needed to become accustomed to rubbing shoulders with other people.

Poor Psychology

The outstanding cause, in my opinion, is the failure of the engineering schools to provide training in human relations. Not only by taste, but by training, the engineer usually is rather on the introvert side. He tends to be satisfied to retire from the public eye and concentrate on physical things, rather than on the human beings about him. Generally he dislikes a sales job, and it is amazing what he sometimes does in the way of human relations. The average engineering manager often has trouble with his men because he knows how to handle only the mechanical aspects of his work; nothing in his training has fitted him for the handling of men.

One large manufacturer used to tell young engineering graduates attending his training course: "We know you won't like some of the things we are going to give you in this course. You won't like it because you are engineers. But we are engineers too, and we have gone through it. We know you don't know how to talk, how to persuade anybody to do anything, and so we're going, first of all, to give you a course in public speaking." At that the students would groan.

"Then," the leaders of the program would say, "we're going to teach you how to write." More groans.

"Then," continuing, "we're going to give you a basic course in selling."

"But," the students always protested, "We don't have to sell. We're going to be engineers."

It would be pointed out to them that an engineer needs to know how to sell his designs and his ideas to his own superiors if to no others, that he even has to sell the shop people if he wants them to work with him wholeheartedly and produce the best results and eventually the students would become convinced that there might be something to the program.

During a period of years as an engineering manager, I have observed that many engineers are not as commercially minded as they should be. Design engineers frequently are interested more in making a theoretically perfect design than they are in producing something that will sell at a profit.

It was B. G. Lamme who said, "The test of a good engineer is whether or not he can drop the subject when he gets a design that is good enough." And everyone has seen engineers who are unable to do just that. They want perfection, even if the last ounce of excellence costs ten per cent and is not worth five cents more.

Engineers Inarticulate?

Another quality which seems to be lacking among our engineers, and which may be even more difficult to develop, is the ability to state problems. Most engineers can solve a problem if it is stated for them, but they cannot seem to isolate the problem themselves. The employer has to state the problem for them, which means that they are a good deal less valuable to him than they could be. In many cases, once the problem itself is clear, the solution is apparent, or at least easily obtainable through ordinary engineering techniques.

As has been indicated, some of these gaps in the engineers' background are filled in with postgraduate courses given by industry. However, the colleges should do more of that work. They should be able to do it more thoroughly than industry can; and, as a matter of fact, some of them are beginning to accept responsibility for it. Cornell University, for example, just has added another year to its engineering course, 20 per cent of the subjects to be so-called "cultural" subjects—such as English, public speaking, economics, and business law. Engineers need these subjects, and they need also some knowledge of accounting principles, of executive techniques, and of the fundamental principles of handling people.

Engineers As Management

Finally, there is the last phase of the subject, engineers as candidates for managerial positions. Engineering training is, in my opinion, the best preparation that we have today for managerial work, particularly in fields like manufacturing, utility operation, and others of a comparatively technical nature. However, the gaps in that training which handicap the engineer in his job as an engineer are doubly hampering to him in a managerial position.

The more the job becomes one requiring executive ability, the less there is need of a slide rule. The more general the problems become, the more what is going on in the world has a bearing on the decisions. The head

of a company is concerned with labor problems, the tariff, the Export-Import Bank—basic questions much broader than any covered in ordinary engineering courses. Thus, it seems to me, we could broaden appreciably for management positions. Here again much more emphasis on the human element is needed. Executive decisions today must be based on more than pure logic, for it is often pure emotion which determines the effect of a decision on employees.

Employee Reaction

As an illustration of how deficient the engineer may be in this respect a recent case may be cited. Some executives were discussing the employee dissatisfaction in their plant. (It is not unionized—yet.)

The manager of the company remarked, "You know, I cannot understand these employees. It seems that the more you do for them, the more dissatisfaction you create. We instituted a pension plan for the employees that entails absolutely no cost to them and yet they are dissatisfied."

"What kind of a plan is it?" I asked.

"Well, employees earning more than $5,000 receive ten per cent of their monthly salary as a monthly pension after they reach the age of 65."

"What about those earning under $5,000?"

"They receive five per cent."

"Do I understand you correctly? Those earning over $5,000 get a larger percentage than those under $5,000?"

"Yes."

"Are you surprised that you have dissatisfaction?"

"Well," he said, "it doesn't cost them anything; we give it to them."

The reaction of the employees easily can be imagined. Many of them were threatening to quit the company, would have done so, in fact, if the plant had not been in an isolated spot where other jobs were not obtainable.

It is incidents such as this, elementary things, which can play havoc with human relations. Probably even pure logic should have enabled management to forecast the employee reaction in that case, but the executives went blithely on their way, spending something like a million dollars to establish the plan. The money, of course, was thrown out the window, so far as developing good employee relations was concerned.

I believe that there is a great future ahead for engineers, if the gaps in engineering education and training can be filled in and they learn to handle the human aspects of their jobs as skillfully as they handle the technical phases. Industry is entering a new period, a period in which human problems are going to be even more important than technical problems. Handling labor relations" is merely calling in the fire department. What is needed is fire prevention; employer-employee relations must be handled in such a way that there is no need for some outside organization to come in and speak for the employees. If engineers are going to take their place in a broader field, they must learn to recognize the human relations aspects of management, instead of leaving that important phase to some other professional group.

Government Employment

(*Continued from Page 5*)

the medium of general contracts awarded on a competitive, lump-sum-bid basis. However, enacted legislation allows the award of contracts on a negotiated, cost-plus-a-fixed-fee basis, and this type of contrast was extensively used during the period immediately prior to and during the early stages of the war. The use of this type of contract has been largely discontinued, since March 1943, in favor of the lump-sum form of contract.

The Army Engineers have also been rapidly getting away from the cost-plus-a-fixed-fee contract. It is not surprising that all agencies of the government are abandoning this type of contract as almost every day new disclosures are made of the abuses that this form of contract involved during the war.

Army and Navy Fees

In the employment of consulting engineers and architects by the armed forces it is found that there is also lacking any definite written minimum fee standards. Both the Army and Navy reiterate the language of the other agencies in stating that the fees are determined by negotiation, depending upon the factors enumerated previously for the other departments.

During the war the Army and Navy were restricted to maximum payments of $50 per day for consultants of a technical and professional nature. Now, however, it is reported that engineer consultants are receiving up to $100 per day in some cases.

Neither department exercises jurisdiction over the fees or salaries that contractors or sub-contractors pay their employees or consultants, except in the case of the cost-plus-a-fixed-fee contract, in which cases the fees and salaries are checked for reasonableness.

Legislative Restrictions

In surveying the government agencies on this question it was often found that mention was made of restrictions on fees imposed by the Congressional appropriation or general legislation. A typical example of such a general restriction is found in Public Law 600, approved August 2, 1946, in which the Act authorizing certain administrative expenses states in regard to the employment of intermittent consultants, "such service shall be without regard to the civil-service and classification laws (but as to agencies subject to the Classification Act at rates not in excess of the per diem equivalent of the highest rate payable under the Classification Act, unless other rates are specifically provided in the appropriation or other law) . . ."

When this restriction applies it figures out to slightly less than $40 per day. A number of agency officials have expressed some doubt as to the ultimate effect of this Act inasmuch as the Comptroller General has not yet made a ruling upon it.

This restriction is often overcome, however, by the specific appropriation acts, as in the case of Public Law 334, approved March 28, 1946, appropriating funds for various agencies. Under the Federal Works appropriation occur several phrases exempting the agencies under FWA from following the restriction on consultant fees previously mentioned. It is stated, "Under the appropriations for salaries and expenses, public buildings and grounds in and outside the District of Columbia, per diem employees may be paid at rates approved by the Commissioner of Public Buildings, not exceeding current rates for similar services in the place where such services are employed,

and such employees in emergencies may be entered on duty subject to confirmation by the Federal Works Administrator."

Another provision provides "for the temporary employment, by contract or otherwise, of technical consultants and experts without regard to section 3709 of the Revised Statutes, and civil-service and classification laws."

These are typical examples of legislative action which, in most cases, will make the general restriction of Public Law 600 inapplicable to experts and consultants.

Agencies Not Covered

For the sake of brevity a number of Federal Agencies that may occasionally let contracts and engage consultants have been omitted from this report. However, it has been determined that their policies follow very closely the general policies set out above. Outside of the Army, Navy, and FWA, the number of experts and consultants employed by government agencies will be relatively few.

Field Offices

Those members who may have occasion to contact the field offices of the various Federal agencies may obtain a copy of the location of such field offices for the agency in question by writing to the Washington Office, NSPE, or directly to the agency concerned.

The machine age requires that we weed out incompetents and have only men of real competency and integrity in positions of great responsibility. Our system puts too many incompetents in positions of highest political responsibility through seniority.

When a train is wrecked because of a defective switch, it is not enough to repair the switch. There should be an inquiry into the responsibility for the defect. If the political world could get this principle through its head, we might get somewhere.

England asks, "How can we buy more and more from America, when we have so little to export to you?" America asks, "How can we continue to sell more and more abroad, when other nations have relatively so little of the commodities which we will accept in payment?" That is one of the basic problems economists must tackle, if and when they ever get around to facing things as they are.

The United States has 60 times as much iron per person as Japan, and 200 times as much coal. There are 250 Americans to each square mile of arable land.

Just prior to Pearl Harbor, the U. S. Treasury purchased $702,000,000 worth of Japanese gold. This metal was worse than useless to this country. But it did finance the Japanese purchase of American scrap iron and other necessary war materials.

A noted scientist has said that the only real enemy of the Scientific Method applied in the administration of social affairs, is the widespread inability to understand. If this is correct, a campaign of education seems to be in order. When do we start?

Americans have a duty to find out who pays the campaign expenses of the candidates for whom they vote. In the long run, political campaigns must be run on the principle laid down by Jesse Macy years ago: "No people can be free who do not maintain the privilege of paying their own bills."

Keen judges of political trends are deeply concerned over the fact that more and more towns throughout the country have but one newspaper and, too often, that paper also owns the town's only radio station.

The new OPA bill signed by President Truman appropriates one billion dollars for subsidies, but makes sure that little of this will be used, by eliminating price control on the products to which it would have applied.

Of the 7,000 infants born each day in the United States, according to a medical authority, about one in twenty-six eventually becomes incapacitated by abnormalities of the mind.

Some say that whatever is right or best for the country, "can be achieved through the irresistible power of an awakened and informed public opinion." But did you ever undertake the job of "awakening and informing" public opinion?

To the apple-selling business enterpriser: "Here on the top of your basket, the apples represent your reputation; later, near the bottom we'll discover your character."

"Both the Roosevelt and Truman Administrations have attempted to steer a course in a country torn by the economic struggle of powerful groups in industry, in agriculture and in labor."—Thurman Arnold.

"Liberalism means an intelligent effort to keep the political and economic development of our nation abreast of the responsibilities that come from the atomic age. It means an extension of the use of our resources for the

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Will Rogers once said, "America never lost a war, or won a conference." That is another way of saying we are strong in war, but weak in peace. The question is, then, can we afford to be always at war in order to be strong?

Collective Bargaining

(*Continued from Page* 19)

to the American Medical Association and the American Bar Association, but the engineers, who have been noted for their ability to organize physical things and have contributed in large measure to the world of today through applied sciences, *have so neglected the development of the social sciences as to be caught in the wake of the mechanical giant they created.*

In the interim, between today's hydra of engineering groups to a unified engineering profession, it will be necessary for professional engineering employees to maintain professional status and economic equality through the legal processes available to them. Today, the only remedy available by law is collective bargaining under the National Labor Relations Act.

References

1. By definition in the Act "the term 'employer' includes any person acting as the interests of an employer, directly or indirectly" but excepts the U. S. states and their political subdivisions persons subject to the Railway Labor Act, and labor organizations. On the other hand, "The term 'employee' shall include any employee . . ." except agricultural laborers and domestic servants
2. 1 NLRB 164; 169.
3. Matter of Westinghouse Electric and Manufacturing Company (Louisville Ordnance Division) Case No. 9-4711
4. 44 NLRB No. 31.
5. Matter of Shell Development Company Inc., and International Federation of Architects, Engineers, Chemists, and Technicians (CIO) Case No. XX-R-1 (38 NLRB 92).

Why Engineers Should Register

(*Continued from Page 8*)

rive, and does derive through registration and legal recognition of his qualifications.

7. I have submitted my record to a body of men established by law for the purpose of distinguishing *professional* engineers from those that are not professional in the legal sense. My State Board has proven my claim to this distinction and has established legally my right to be identified as a member of the profession.

8. By registering I make a definite contribution to the records of the achievements and accomplishments of a group of professional men who have similar interests and activities, so that I may add to the weight of their influence in the affairs of the State and Nation.

9. I registered so that I may be more effectively protected against trespassers, interlopers and pretenders.

10. My decision to register stems from my conception that it is the duty of each generation to contribute something worthwhile for the benefit of the generations yet to come. I believe that the practice of recognizing engineers as being truly professional through the process of registration, is a great contribution to the welfare of the future generation of engineers. Our own generation can render no greater service than to see that this practice is firmly, soundly and permanently established. Thus the young engineers of the future may have upheld before them this worthwhile goal which may be achieved in due time through their own efforts. In short, registration stands for a proper recognition of unusual ability, good character and superior achievement.

Corporations in Idaho Can't be "Engineers"

It is against the law of the State of Idaho for a corporation or company to use the words "engineer", "engineering", "surveyor", or "surveying" in its corporate or company name, or in its public announcements. This is the opinion given to the secretary of the State Board of Engineering Examiners by Frank Langley, Idaho attorney general.

Commenting on this opinion Langley said that an examination of the State law "leads one to the conclusion that the profession of engineering is of a personal nature and cannot be practiced by a corporation."

RAMIE

A number of inquiries have been received by the Editor of the American Engineer in reference to the probable future of the new fabric "Ramie." It may interest these inquirers and other engineers to know that the magazine, Nations' Business, published by the U. S. Chamber of Commerce, has scheduled an article on this subject for its December issue. The article is by Mr. Eric Morrell, an authority on Ramie and its processing.

World Engineering Group

As a result of the recent meeting in Paris, France, of 1,200 engineers from many countries, a World Engineering Conference is being set up. Representatives from Engineering Societies of all nations will be represented. The new organization will be directed by an executive board composed of representatives of twelve countries. Engineering Societies all over the world will be sounded out on the sort of world engineering federation they desire, and will then attempt to work out the details of such an organization.

Temporary American representative on the executive board is Fenton B. Turck, a member of the Joint Committee on International Relations of the Engineers' Joint Council.

Resolutions were adopted calling upon the United Nations to organize an engineering staff in its secretariat, and called for the creation of one or more international engineering schools.

Nearly all great revolutions of history not only started as *minority* movements, but seldom became anything else, even when they had succeeded.

Nearly 4,000 bills have been introduced in the Congress which were intended to benefit veterans. Veterans are organized.

The average speed of freight trains was 52 per cent faster in 1944 than in 1920. In 1944, the average distance traveled by trains for each 24-hour period was 377 miles, including all stops and delays en route, compared with 247 miles in 1920.

Cash Prizes Offered Engineers For Original Machine Designs

The James F. Lincoln Arc Welding Foundation announces that its $200,000 Design-For-Progress Award Program is now open for participation by engineers.

The Foundation will present 452 separate cash awards ranging from $13,200 to $100, or a total of $200,000 for the best papers.

A wide range of subject matter may be covered in these papers, including the application of arc welding to new design or redesign of existing machinery, structures, buildings, manufactured or fabricated products; its use in connection with plant or machinery maintenance, research related to arc welding, or engineering education dealing with the best methods of teaching welded design.

This is a *design* program. Sufficient knowledge of welding can readily be added to design knowledge to prepare papers.

Complete information may be obtained by application to The James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio.

There is much evidence now-a-days that it is quite possible for an individual to be "well born," and yet "ill-bred."

In modern times it is impossible for any group to make war without taking great pains to put all the blame on the other side. Just how then do we proceed to "quarantine the aggressor?"

There is no antidote for discontent equal to easy sentimental optimism, as every politician knows.

Arbitrary authority given to government, even in war time, is easier to confer than to repeal.

Much bad government survives and thrives on policies which unite the people behind the oppressor within, as the only method of withstanding the enemy without.

One of those competitive races in which nobody wins, and everybody loses, is the one between wages and prices.

What's New For Engineers

Requests for further information concerning any item mentioned under this heading will be promptly referred to the manufacturer. It would be appreciated if inquiries be addressed on professional or company letterhead.

Send Inquiries Direct to American Engineer, #6 Church Street, New York, N. Y.

CLARIFIER FOR TURBID WATER

Filtration alone is insufficient to clarify a water containing appreciable turbidity or color. In such cases, coagulation by means of chemicals which form jelly-like precipitates or "floc" to entrap or absorb the finely divided impurities must precede filtration.

The apparatus in which coagulation takes place must provide for agitation of the chemicals and water followed by separation of the water from the precipitates. But a simple mixing and settling tank is far from satisfactory for the purpose, even with provisions for varying the degree of agitation and for recirculation of sludge. To asure maximum effectiveness of clarification in the least time, with greatest economy of space and chemicals, a unit efficiently combines the operations of mixing the raw water with the coagulating chemicals, properly agitating the mixture, maintaining a suspended deep sludge bed or blanket of previously accumulated precipitates, completely separating the clarified water from the sludge, and concentrating the impurity-saturated sludge for minimum volume of blowoff has been devoloped.

The new clarifier is reported to be equally well adapted for coagulation of turbid, colored waters, for softening of hard well waters by lime-soda, for simultaneously softening and clarifying hard river waters, and for removal of iron, maganese, silica or fluorides from water.

For further information address American Engineer, reference No. 530.

PERMANENT POSITION WANTED

By graduate, licensed structural engineer with 13 years design experience. Prefer supervisory work with industrial or consulting firm. Reply box 29, c/o The American Engineer.

DATA SHEET ON THERMOSETTING SILICONE RESIN

This Thermosetting Silicone Resin was devoleped recently and is now being produced in commercial quantities. It is especially designed for use as a heat-stable bonding material for inorganic fabrics in the production of rigid electric laminates; and for bonding finely divided particles such as powdered metals or mica, silica or carbon.

This new data sheet includes tables giving the physical and electrical properties and the chemical resistance of the unfilled DC 2103 resin, as well as recommended procedures for making silicone-glass cloth laminations. Properties of a typical silicone-glass the properties of cotton-phenolic and cloth lamination are compared with glass cloth-melamine combinations. This comparison establishes the fact that DC 2103 is unique among thermosetting resins for its high heat stability, low water absorption, excellent insulating properties over a wide frequency range and for its resistance to carbon tracking.

For further information address American Engineer, reference No. 531.

WEATHER-PROOF ENCLOSED MOTORS

A complete line of outdoor Weather-proof, Totally Enclosed Motors in the larger sizes ranging up to and above 2000 hp. is now being manufactured.

Principal change in the new line of motors in the larger ratings is a complete redesign of the ventilation heat-transfer system. All air passages are practically self cleaning and pockets in which water or liquid might be trapped have been eliminated. Air passage tubes can be easily cleaned with a brush or an air or water hose.

The new totally enclosed all-fabricated steel motor is expected to find particular application in central station power plant service in connection with draft fans and also in the chemical industry. Here, because of its water-proof joints and new cooling system, it promises to be as effective as cast iron motors.

For further information address American Engineer, reference No. 532.

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